

REMARKS

The non-final Office Action issued August 26, 2002 has been reviewed and the comments of the U.S. Patent and Trademark Office have been considered. Claim 21 has been amended. New claims 36-39 have been added. Claims 1-39, including generic claim 32, are pending in the application and are submitted for reconsideration by the Examiner.

Applicant thanks the Examiner for the courteous and productive telephone interview conducted on November 7, 2002. During the interview, it was agreed that because the merits of claims 1, 28, and 32 with respect to the prior art were not addressed in the Office Action of August 26, 2002, any further Office Action on the merits on which the claims are to be considered over the prior art would be issued as a non-final Office Action.

The specification has been objected to under 37 C.F.R. §1.71 for allegedly failing to provide an explanation how the armature can move along the axis in one or more of two opposite directions along the axis when a coil is energized. Claims 1-7, 9, 11-21, 32, and 33 are rejected under 35 U.S.C. 112, first paragraph, for allegedly containing subject matter not enabling to one skilled in the art as to how the armature can move in either directions along the axis when the coil is energized.

Applicant respectfully traverses the objection to the specification and the rejection to the claims because one skilled in the art would be able to make and use the invention as claimed based on the disclosure of this application. As discussed earlier in the Amendment of July 11, 2002, one skilled in the art would be able to make and use the claimed feature based on the particularity of the textual descriptions and illustrated drawings. And the Examiner is respectfully reminded that the standard for which enablement is determined was set forth by the Supreme Court over 100 years ago, which states “[T]hat which is common and well known is as if it were written out in the patent and delineated in the drawings.” See, Loom Company v. Higgins, 105 U.S. 580, 586 (1881). Hence, the teachings of the prior art with regard to servo-valves, regulators and fuel injectors as described in the specification (page 1, lines 5-11, and page 12) are part of this disclosure for enablement purpose under the first paragraph of section 112. Thus, the claimed feature of an armature movable in opposite directions has been adequately disclosed and enabled such that the Examiner (who has the burden of establishing that the disclosure is not enabling) is requested to withdraw the objection to the specification and rejection to the claims.

Furthermore, as stated in MPEP §2164.01, the standard for determining enablement of a

claimed invention can also rest on whether one skilled in the art would be able to make or use the claimed invention from the disclosure of the application without "undue experimentation." The feature of the armature being movable in one or more of two opposite directions along the axis is described in the specification and is described by the prior art as if they are part of the disclosure such that, to one skilled in the art, no undue experimentation is required to make and use this claimed feature. The originally filed application, including Figs. 1-17, provides a depiction of an armature that can be used to move a member such as, for example, a valve which can be opened or closed by moving the valve in opposite directions, as described at page 5, lines 7-10, and particular shown in Fig. 10. Applicant respectfully submits that one skilled in the art, in view of the originally filed application and drawings, would be able to make and use the claimed invention without undue experimentation due to the detailed nature of the textual description and drawings provided in this application. Therefore, the objection to the specification and rejection the claims should be withdrawn. Accordingly, claims 1 and 32 are in condition for allowance.

Claim 5 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicant respectfully notes that claim 5 has been canceled thereby rendering this rejection moot.

Claim 21 stands rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 4,131,866 to Torr.

Insofar as the rejection is applicable to amended claim 21, Applicant respectfully traverses this rejection as Torr fails to teach or suggest the claimed invention as a whole, as recited in claim 21.

Amended claim 21 recites a method of stabilizing an electromagnetically operated actuator that can be achieved, in part, by "[e]xerting a radially outwardly directed force against the sleeve by a single continuous member disposed in the at least one groove that is in direct sliding contact with the sleeve so as to slow the response of the movement of the armature along the axis ..." Support for this amendment to claim 21 is provided in the originally filed specification at, for example, page 4 and Figures 1-7.

In contrast, Torr relies on a resilient member to locate an armature concentrically to an outer tube by rolling contact of the resilient member. In particular, Torr states, at column 3, lines 1-7, that an armature 29 is provided with grooves 30 and resilient members 31 so that the members 31 roll about their longitudinal axis. That is, Torr relies on a rolling contact of the resilient member 31 to support the armature 29 in a concentric fashion with the tube 10 while imparting minimal resistance

between the armature 29 and tube 10, and fails to teach or suggest a member that is in direct sliding contact with the sleeve so as to slow the response of the armature, as recited in claim 21.

Accordingly, claim 21 is patentable.

Moreover, one of ordinary skill in the art would not be motivated to modify Torr to provide for direct sliding contact of the resilient member 31 because such modification could render Torr unsatisfactory for its intended purpose. That is, Torr relies on the rolling contact of the member 31 so as to maintain concentricity of the armature with minimal resistance. Thus, a modification to Torr to provide for at least one groove and member extending along a longitudinal axis of the armature could prevent the rolling motion of the resilient member 31, which could render Torr unsatisfactory for its intended purpose. And as noted at MPEP §2143.01, “[i]f the proposed modification would render the prior art invention unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.” Accordingly, claim 21 is patentable because Torr fails to teach or suggest features of the claimed invention as a whole.

New claims 36 and 37 have been added to recite that the at least one groove is aligned along the longitudinal axis to further distinguish over the transverse circumferential grooves 30 of Torr. New claims 38 and 39 have also been added to more particularly and distinctly claim the subject matter of applicant’s invention. And because Torr fails to teach or suggest respective features of newly added claims 36-39, these claims are also in condition for allowance.

Claims 2-20 and 22-27, 29-31, and 33-35 which depend ultimately from one of claims 1, 21, 28, and 32 are also allowable at least because claims 1, 21, 28, and 32 are allowable, as well for reciting additional features.

CONCLUSION

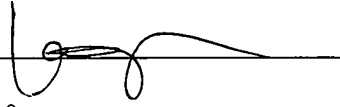
In view of the foregoing remarks, Applicant respectfully requests the reconsideration, reexamination of this application, and allowance of the pending claims 1-39. Applicant respectfully invites the Examiner to contact the undersigned at (202) 739-5203 if there are any outstanding issues that can be resolved via a telephone conference.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached pages are captioned "**VERSION WITH MARKINGS TO SHOW CHANGES MADE.**"

EXCEPT for issue fees payable under 37 C.F.R. §1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0310. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. §1.136(a)(3).

Respectfully submitted,

Date: 26 December 2002
MORGAN, LEWIS & BOCKIUS LLP
1111 M Street N.W.,
Washington, D.C. 20004
202.739.3000
Customer No. 009629


Khoi Q. Ta
Reg. No. 47,300

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

New claims 36-39 have been added.

Claim 21 has been amended as follow:

21. (Thrice Amended) A method of stabilizing an electromagnetically operated actuator, comprising:
providing a coil and an armature, the armature being disposed for movement in a first direction and a second direction opposite the first direction along the axis in the sleeve, the armature having at least one groove formed on an exterior surface thereof;
moving the armature along the axis as a response to energization of the coil; and
exerting a radially outwardly directed force against the sleeve by a single continuous member disposed in the at least one groove that is in direct sliding contact with the sleeve so as to slow the response of the movement of the armature along the axis in the first and second directions when the electromagnetic coil is energized.
